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APPLICATION NO.	FILED DATE	FILE NAME OF INVENTOR	ACCELERATED DOCKET NO.	CONFIRMATION NO.
09/558,647	04/26/2003	Ding, Guo, Kim	09/02/03/52	0021

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EXAMINER

ABRAHAM FELSUM

ARTICLE PAGE NUMBER

289

DATE MAILED 06/26/2003

Please find below and or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09 558,647

Examiner

Fetsum Abraham

Applicant(s)

KIM ET AL

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION

- Extensions of time may be available under the provisions of 37 CFR 1.136(a); in no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on _____.
2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 29, 30, 32-36, 38-46, 49, 59-65, 67, 68 and 70 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1-12, 34 and 38-45 is/are allowed.
6) ☒ Claim(s) 29, 31, 32, 33, 35, 36, 59-62, 64, 65, 67, 68, 70 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statement(s) (PTO-1449, Paper No.s _____)
4. ☐ Interview Summary (PTO-413, Paper No.s _____)
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Other _____

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Claims rejection

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 46-49 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The expression "phodefinable conductors" in claim 46 is not clear as to what the expression means.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 29,33,35,36,64,65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata et al (6,577,374) in view of Song et al (6,531,392).**

The primary reference discloses an active matrix display provided with bottom gate TFT as a switch having gate wire (2a) on an insulating substrate to be connected to gate line in the matrix gate insulation on the gate wire and a semiconductor pattern (4) on the insulator, source electrode to be connected to data line on the pattern in the matrix, photosensitive color filters (13) partially covering the data line which is normally formed on the source electrode (5) an overcoat passivation layer (14) covering the filters, a contact hole (11) extending through the passivation

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layer and color filters, but omits to disclose patterning the gate insulation layer, the semiconductor layer, and the data wire in a single photolithography step. However, Song et al clearly teach the process in claim 37. Therefore, it would have been obvious to one skilled in the art to use the method in the structure of the prior art since it minimizes processing time, saves material and speeds up the processing steps of forming the TFT structure and its interconnecting elements.

As for claim 33 the color filters and the passivation layer are patterned during the formation of the contact hole.

As for claim 35 the data wire and the gate wire are photosensitive conductors.

As for claim 36, the wires of the TFTS are formed during the development of the device elements

as for claims 64,65 Nakata et al shows a data line overlapped with the gate insulation layer and the pixel electrode of the TFT in the patent.

Claims 31,32,59-62 are under 35 U.S.C. 103(a) as being unpatentable over Nakata et al (6,577,374) in view of Song et al (6,531,392) in view of Park et al (6,380,559).

The prior arts disclose all subject matter claimed but the method of making the color filters and the material type of the passivation layer. However, Park et al disclose the claimed method of making color filters (column 18) and the claimed passivation material (see column 14). Therefore, it would have been obvious to one skilled in the art to use the method and the material respectively to form the color filters and to use as a passivation layer in all display environments.

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since the method is known to produce quality color filters the material provides dependable insulation of the overall TFT structure.

As to claim 59, there is a black matrix (90) over the channel region of the TFT in the patent of Park et al. Therefore, it would have been obvious to one skilled in the art to include such a matrix on the channels of stager type transistors since the method provides protection to the region from radiation induced problems.

As for claims 60,61 TFTs provided with color filters and black matrix must be passivated at the end of the product since such structures require insulation and protection. Therefore, planarized organic inorganic passivation layers are common to display pixels as can be seen in figure 4 of Park et al.

Asa for claim 62, the data line of Nakata follow the structure of the source region in the semiconductor layer.

As for claim 63, Park et al do not discriminate any type of color filter known in the art and resins are known as one.

Claims 67,68,70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata et al (6,577,374) in view of Song et al (6,531,392) and further in view of Jeong (6,137,551).

The prior arts disclose all subject matter claimed but omit to teach if gate wires and storage electrodes are formed on the same layer. However, the normal practice in the art is taught by Joeng (see figure 2) In the Brief Summary Text (11), the patent puts the words as "... level. A

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second storage electrode 22 and gate line 131 are formed of the same material at the same layer level". Therefore, it would have been obvious to use the method of forming the two elements on the same layer since it minimizes processing complications of display devices.

As for claim 68, the data line (17) in figure 2 extends to cover the storage node (21) thereby providing second storage electrode. Therefore, both elements are represented by a single element which means they are formed on the same layer.

As for claim 70, the color filters (13) and the pixel electrode ((9) of the front page structure in the patent of Nakata are isolated from each other by insulation layer (14).

Claim 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata et al (6,577,374) in view of Song et al (6,531,392) in view of Shimada et al (5,870,157).

The prior arts disclose all subject matter claimed but overlapping color filters in display configuration. However, Shimada teaches the claimed structure (see title). Therefore, it would have been obvious to one skilled in the art to use the structure in all display based devices since overlapping filters saves space, thereby providing six advantage of pixels in the matrix.

Claims 1-12,34,38-45 have been allowed.

The claimed method of forming a structure (1-12,38) includes different photoresist thicknesses to pattern different elements of the structure which is neither taught nor rendered obvious by the prior arts.

The said second, and third contact holes in the color filter, the passivation layer and the gate insulation layer of the TFT structure of claim 34 is the reason for allowing the claim.

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Any inquiry concerning this communication should be directed to Fetsum Abraham at telephone number (703) 305.3793, or by E-mail at ***fetsum.abraham@uspto.gov***.

Any inquiry of a general nature or relating to the status of this application should be directed to the ***SPE of AU*** 2826 at (703)308-6601, or the ***Group receptionist*** at (703) 308-0956.

Fetsum Abraham

6/14/03

11/14/03